

What is Claimed is:

1. A magnetic suspension bearing adopted for use on a rotational device which consists of a stator, a spindle and a base dock for holding the stator, the spindle being rotationably coupled with the stator through the magnetic suspension bearing, the
5 magnetic suspension bearing comprising:

two magnetic ring sets each including a stator magnetic unit abutting a top side and a bottom side of the stator and a spindle magnetic unit coupled on two ends of the spindle corresponding to the stator magnetic unit to generate repulsive magnetic forces against the stator magnetic unit and allow the spindle to space from the stator
10 at a selected distance in normal conditions; and

a loading section located at one end of the spindle to hold the spindle.
2. The magnetic suspension bearing of claim 1, wherein the stator magnetic unit and the spindle magnetic unit have a vertical difference less than 1 mm.
3. The magnetic suspension bearing of claim 1, wherein the loading section is located
15 on the bottom end of the spindle and is interposed between the spindle and the base dock.
4. The magnetic suspension bearing of claim 1, wherein the loading section is located at the top side of the stator.
5. The magnetic suspension bearing of claim 1, wherein the loading section is a friction
20 pad.
6. The magnetic suspension bearing of claim 1, wherein the loading section is a lubrication unit which contains a small amount of oily substance to lubricate the spindle.
7. The magnetic suspension bearing of claim 6, wherein the lubrication unit is a

dynamic thrust bearing.

8. The magnetic suspension bearing of claim 1 further having a spindle separation ring located between the spindle magnetic units at two ends of the spindle.
9. The magnetic suspension bearing of claim 1 further having a stator separation ring
5 located between the stator magnetic units at the top side and the bottom side of the stator.
10. The magnetic suspension bearing of claim 1, wherein the top side of the stator has a separator to couple with the stator magnetic unit.
11. The magnetic suspension bearing of claim 1, wherein the spindle magnetic unit is
10 magnetized axially, and the stator magnetic unit is magnetized axially in the same magnetized direction of the spindle magnetic unit.
12. The magnetic suspension bearing of claim 1, wherein the spindle magnetic unit is magnetized radially, and the stator magnetic unit is magnetized radially in an opposite magnetized direction of the spindle magnetic unit.
13. The magnetic suspension bearing of claim 12, wherein the spindle magnetic unit is
15 magnetized axially and the stator magnetic unit is magnetized axially in the same magnetized direction of the spindle magnetic unit.
14. The magnetic suspension bearing of claim 1, wherein the spindle is in contact with the loading section on a single point.
15. The magnetic suspension bearing of claim 1, wherein the loading section has a
20 cavity to receive one end of the spindle.
16. The magnetic suspension bearing of claim 1, wherein the loading section has a substantially flat top side.
17. The magnetic suspension bearing of claim 16, wherein the spindle is in contact with

loading section in the axial direction.

18. The magnetic suspension bearing of claim 1, wherein the loading section has a substantially concave arched side in contact with the spindle.

19. The magnetic suspension bearing of claim 1, wherein the loading section has a
5 substantially convex arched side in contact with the spindle.